

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A continuous process for isolating butenes from a C<sub>4</sub> fraction ~~comprising~~ which comprises butanes, butenes and ~~possibly optionally~~ traces of other hydrocarbons by extractive distillation using a selective solvent; the process comprising:  
solvent (LM), in which

feeding the C<sub>4</sub> fraction in gaseous or liquid form into a scrubbing zone,

feeding the selective solvent in liquid form into the scrubbing zone above the feed point of the C<sub>4</sub> fraction,

separating the C<sub>4</sub> fraction is, in a first process stage I, separated in a scrubbing zone (E) into which the C<sub>4</sub> fraction (C<sub>4</sub>) is fed in gaseous or liquid form and the selective solvent (LM) is fed in liquid form above the feed point of the C<sub>4</sub> fraction into a butane-containing into a first top stream comprising butane (C<sub>4</sub>H<sub>10</sub>) and a first bottom stream (LM/C<sub>4</sub>H<sub>8</sub>) comprising the selective solvent laden with the butenes and ~~possibly optionally~~ traces of other hydrocarbons, and the bottom stream (LM/C<sub>4</sub>H<sub>8</sub>) is,

in a second process stage II, separated in a degassing zone (A) to which energy is fed via a bottom vaporizer (W5) and which is at a higher temperature and/or lower pressure than the scrubbing zone (E)

separating the first bottom stream into a second top stream (C<sub>4</sub>H<sub>8</sub>) comprising the butenes and any said optional traces of other hydrocarbons and a second bottom stream (LM) comprising the selective solvent in a degassing zone,

with wherein energy is fed into the degassing zone via a bottom vaporizer,

the temperature of the degassing zone is at a higher temperature and/or a lower pressure than the scrubbing zone,

the heat of the second bottom stream (~~LM~~) from the degassing zone (~~A~~) ~~being is~~ utilized for increasing the temperature in the degassing zone (~~A~~),

~~wherein the~~ a first liquid or a substream of the first liquid is taken off from the degassing zone (~~A~~) at a theoretical plate located one or more theoretical plates below the feed point for the first bottom stream (~~LM~~/ $C_4H_8$ ) from the scrubbing zone (~~E~~), heated and/or vaporized by indirect heat exchange with the ~~hot~~ second bottom stream (~~LM~~) from the degassing zone (~~A~~) and returned to the degassing zone (~~A~~) at or above the ~~same~~ theoretical plate ~~or above this, with~~ wherein the theoretical plate from which the liquid or substream of liquid is taken off ~~being is~~ selected ~~so that~~ to minimize the total energy requirement in the process stages I and II ~~is minimized~~.

Claim 2 (Currently Amended): ~~[[A]]~~ The process as claimed in claim 1, wherein the  $C_4$  fraction ( $C_4$ ) is ~~fed to the scrubbing zone (~~E~~)~~ in gaseous form, preferably and is fed into the scrubbing zone in the lower part thereof.

Claim 3 (Currently Amended): ~~[[A]]~~ The process as claimed in claim 1, claim 1 or 2, wherein ~~the~~ a second liquid or a substream of the second liquid is taken off from the scrubbing zone (~~E~~) from a theoretical plate located one or more theoretical plates below the feed point for the stream of selective solvent (~~LM~~), preferably and below the feed point for the  $C_4$  fraction (~~C<sub>4</sub>~~), heated and/or vaporized by indirect heat exchange with the ~~hot~~ second bottom stream (~~LM~~) from the degassing zone (~~A~~) and returned to the scrubbing zone (~~E~~) at or above the ~~same~~ theoretical plate ~~or above this, with~~ wherein the theoretical plate from which the liquid or substream of liquid is taken off ~~being is~~ selected ~~so that~~ to minimize the total energy requirement in the process stages I and II ~~is minimized~~.

Claim 4 (Currently Amended): ~~[[A]]~~ The process as claimed in claim 1, any of claims 1 to 3, wherein the selective solvent used consists of one or more of the substances is selected from the group consisting of N-methylpyrrolidone (NMP), dimethylformamide, acetonitrile and acetonitrile, furfural, mixture of N-methylpyrrolidone and at least one cosolvent, mixture of dimethylformamide and at least one cosolvent, mixture of acetonitrile and at least one cosolvent, mixture of furfural and at least one cosolvent, and mixtures thereof. furfural or a mixture of one or more of the abovementioned substances with cosolvents.

Claim 5 (Currently Amended): ~~[[A]]~~ The process as claimed in claim 4, wherein the selective solvent comprises N-methylpyrrolidone and the N-methylpyrrolidone comprises from 0 to 20% by weight of water. NMP containing from 0 to 20% by weight of water, in particular from 7 to 10% by weight of water, particularly preferably 8.3% by weight of water, is used.

Claim 6 (Currently Amended): ~~[[A]]~~ The process as claimed in claim 1, any of claims 1 to 5, wherein the first liquid or the substream of the first liquid from the degassing zone (A) and/or from the scrubbing zone (E) is returned to the same theoretical plate from which the liquid or the substream of the liquid was taken off.

Claim 7 (Currently Amended): ~~[[A]]~~ The process as claimed in claim 1, any of claims 1 to 6, wherein the liquid stream or substream taken off is subjected to expansion evaporation to give a gaseous phase and a liquid phase and the gaseous and liquid phases are subsequently returned to the same theoretical plate from which the liquid stream or substream was taken off or the gaseous part of the liquid stream or substream which was taken off is returned to a

theoretical plate located one or more theoretical plates above the theoretical plate from which the liquid stream or substream was taken off.

Claim 8 (Currently Amended): ~~[[A]] The process as claimed in claim 1, any of claims 1 to 7, wherein the number of theoretical plates in the scrubbing zone (E) is from 10 to 80, 80, preferably from 20 to 30, in particular 26, and the number of theoretical plates in the degassing zone (A) is from 1 to 30. 30, preferably from 2 to 8, in particular 4.~~

Claim 9 (Currently Amended): ~~[[A]] The process as claimed in claim 1, any of claims 1 to 8, wherein the scrubbing zone (E) and the degassing zone (A) are both located in a single column.~~

Claim 10 (New): The process as claimed in claim 5, wherein N-methylpyrrolidone comprises from 7 to 10% by weight of water.

Claim 11 (New): The process as claimed in claim 5, wherein N-methylpyrrolidone comprises 8.3% by weight of water.

Claim 12 (New): The process as claimed in claim 3, wherein the first liquid or the substream of the first liquid from the degassing zone and/or the second liquid or the substream of the second liquid from the scrubbing zone is returned to the same theoretical plate from which the liquid or the substream of the liquid was taken off.

Claim 13 (New): The process as claimed in claim 8, wherein the number of theoretical plates in the scrubbing zone is from 20 to 30 and the number of theoretical plates in the degassing zone is from 2 to 8.

Claim 14 (New): The process as claimed in claim 8, wherein the number of theoretical plates in the scrubbing zone is 26 and the number of theoretical plates in the degassing zone is 4.